

What is claimed:

1. A fuel composition comprising:
a combustion improving amount of a symmetrical dialkyl carbonate;
a combustion improving amount of at least one combustible compound containing at least one element selected from the group consisting of aluminum, boron, bromine, bismuth, beryllium, calcium, cesium, chromium, cobalt, copper, francium, gallium, germanium, iodine, iron, indium, lithium, magnesium, manganese, molybdenum, nickel, niobium, phosphorus, potassium, palladium, rubidium, sodium, tin, zinc, praseodymium, rhenium, silicon, vanadium, strontium, barium, radium, scandium, yttrium, lanthanum, actinium, cerium, thorium, titanium, zirconium, hafium, praseodymium, protactinium, tantalum, neodymium, uranium, tungsten, promethium, neptunium, samarium, plutonium, ruthenium, osmium, europium, americium, rhodium, iridium, gadolinium, curium, platinum, terbium, berkelium, silver, gold, dysprosium, californium, cadmium, mercury, holmium, titanium, erbium, thulium, arsenic, antimony, ytterbium, selenium, tellurium, polonium, lutetium, astatine, mixture thereof, including organic and inorganic derivatives;

optionally hydrogen or a hydrocarbon base fuel;

optionally an oxidizer; and

optionally a co-metallic catalyst,

wherein said fuel composition has a pH of from 4.5 to 10.5 and is a vapor phase composition characterized upon combustion as having a luminous reaction zone extending from surface of said element.

2. The fuel composition of claim 1, wherein the pH is less than 9.5.

3. The fuel composition of claim 1, wherein the pH is less than 8.0.

4. The fuel composition of claim 1, wherein the pH is from 6.3 to 6.8.

5. The fuel composition of claim 1, wherein the dialkyl carbonate is dimethyl carbonate, and the combustible compound is selected from cyclopentadienyl manganese tricarbonyl, [2-(cyclohexenyl)ethyl]triethoxy-silane, cyclohexenyl

dimethoxymethylsilane, benzyltrimethylsilane, N-(3-(trimethoxysilyl)propyl)ethylenediamine, N-1-(3-(trimethoxysilyl)propyl)di-ethylenetriamine, N-(3-(trimethoxysilyl)propyl)ethylenediamine, 1-(tri-methyl(silyl)pyrrolidine, triphenylsilanol, octamethyltrisiloxane, 2,2,4,4,6,6-hexamethylcyclotrisilazane, hexamethylcyclotrisiloxane, hexamethyldisilane, 1,1,1,3,3,3-hexamethyl disilazane, hexamethyldisiloxane, hexamethyldi-silthiane, allyltributylsilane, tetraalkylsilanes, 3-aminopropyltriethoxy-silane, benzytrimethylsilane, benzytriethylsilane, N-benzyltrimethylsilyl-amine, diphenylsilanediol, dihexylsilanediol, (trimethylsilyl)cyclopentadi-ene, potassium hexacyanoferrate (II), potassium hexacyanoferrate (III), potassium hexacyanocobalt II- ferrate, potassium hexacyanocobalt, potassium sodium ferricyanide, potassium ethoxide, or mixture.

6. The composition of claim 1 containing a co-metallic catalyst, selected from group consisting of trimethoxymethylsilane, ethoxytrimethylsilane, isobutyltriethoxysilane, tetramethylsilane, dimethoxy-methyl-vinyl-silane, methyltriethoxysilane, 3-aminopropyltriethoxysilane, 3-aminopropyl-trimethoxysilane, vinyltrimethoxysilane, diethoxydimethylsilane, dimethoxydimethylsilane, vinyltris(2-butyl-denaminoxy)silane, tetramethoxysilane, tetraethoxysilane, tetrapropyl-oxysilane, tetraisopropylsilane, tetraisobutylsilane, dimethylphosphite, dipropylphosphite, diethylphosphite, dibutylphosphite, di-tert-butyl-phosphite, trialkylphosphites trimethylphosphite, triethylphosphite, triisopropylphosphite, tributylphosphite), dimethylmethylphosphonate, diethylmethylphosphonate, potassium pryophosphite, trimethylorthoacetate, triethylorthoacetate, trimethylorthobutyrate, triethylorthobutyrate, trimethylorthovalerate, trimethylorthoformate, including homolgues, analogues, isomers, derivatives, and mixture thereof.

7. The composition of claim 1, wherein the dialkyl carbonate is selected from the group consisting of dimethyl and diethyl carbonate.

8. The composition of claim 1, wherein the fuel composition is an enhanced aviation turbine fuel composition wherein the dialogue carbonate is a C3 to C7 symmetrical dialkyl dicarbonate, an aviation turbine hydrocarbon base having a viscosity equal or exceeding 8.1

MM2/S, and the fuel composition is characterized as being acidic not exceeding equivalent of 0.1 mg KOH/g.

9. The composition of claim 1, wherein the fuel composition is a diesel fuel oil, the dialkyl carbonate is dimethyl carbonate representing 0.01% to 40.0% oxygen by wt. of the fuel, the hydrocarbon base fuel has a viscosity equal to or greater than 2.5, MM2/S at 40°C, and the fuel composition is characterized as having a pH less than 10.5 and a viscosity equal to or less than 2.4 MM2/S at 40°C.

10. A fuel composition of claim 1, wherein said composition is a gasoline comprising a lower dialkyl carbonate, characterized as having a pH less than 10.5, and optionally being phosphorus free hydrocarbons, with a maximum Reid Vapor Pressure of 12.0 psi, a maximum of 12% olefins, a maximum of 30% aromatics, a maximum of 2.0% benzene, a maximum of 50 ppm sulfur or sulfur free, a total O2 concentration ranging from 0.5% to 10.0% wt of dialkyl carbonate, a combustible metal or non-metal selected from group consisting of cyclopentadienyl manganese tricarbonyl, [2-(cyclohexenyl)ethyl]triethoxysilane, cyclohexenyl dimethoxymethylsilane, benzyltrimethylsilane, N-(3-(trimethoxysilyl)propyl)ethylenediamine, N-1-(3-(trimethoxysilyl)propyl)diethylenetriamine, N-(3-(trimethoxysilyl)propyl)ethylenediamine, 1-(trimethyl(silyl)-pyrrolidine, triphenylsilanol, octamethyltrisiloxane, 2,2,4,4,6,6-hexamethylcyclotrisilazane, hexamethylcyclotrisiloxane, hexamethyldisilane, 1,1,1,3,3,3-hexamethyl disilazane, hexamethyldisiloxane, hexamethyldisilthiane, allyltributylsilane, tetraalkylsilanes, 3-aminopropyltriethoxysilane, benzytrimethylsilane, benzytriethylsilane, N-benzyltrimethylsilylamine, diphenylsilanediol, dihexylsilanediol, (trimethylsilyl)cyclopentadiene, potassium hexacyanoferrate (II), potassium hexacyanoferrate (III), potassium hexacyanocobalt II- ferrate, potassium hexacyanocobalt, potassium sodium ferricyanide, potassium ethoxide, or mixture, a maximum T-90 temperature of 330°F to 280°F, a T-50 temperature of approx. 170°F to 230°F., a minimum (R+M)/2 octane of 85, to 92, a bromine number of 20 or less, an average latent heat of vaporization of 880 to 920 BTU/gal at 60°F, a heating value greater than 106,000 btu/gal at 60°F.

11. A method of minimizing hydrolysis of a fuel composition comprising the steps of:

providing a symmetrical lower dialkyl carbonate;

providing an combustion improving amount of at least one combustible compound containing at least one element selected from the group consisting of aluminum, boron, bromine, bismuth, beryllium, calcium, cesium, chromium, cobalt, copper, francium, gallium, germanium, iodine, iron, indium, lithium, magnesium, manganese, molybdenum, nickel, niobium, phosphorus, potassium, palladium, rubidium, sodium, tin, zinc, praseodymium, rhenium, silicon, vanadium, strontium, barium, radium, scandium, yttrium, lanthanum, actinium, cerium, thorium, titanium, zirconium, hafium, praseodymium, protactinium, tantalum, neodymium, uranium, tungsten, promethium, neptunium, samarium, plutonium, ruthenium, osmium, europium, americium, rhodium, iridium, gadolinium, curium, platinum, terbium, berkelium, silver, gold, dysprosium, californium, cadmium, mercury, holmium, titanium, erbium, thulium, arsenic, antimony, ytterbium, selenium, tellurium, polonium, lutetium, astatine, mixture thereof, including their organic and inorganic derivative compounds;

providing a hydrocarbon; and

mixing said carbonate, said combustible compound, and said hydrocarbon so as to produce a fuel composition having a pH of from 4.5 to 9.5 which is a vapor phase composition having upon combustion a luminous reaction zone extends from surface of said element.

13. The method of 11, wherein said fuel is stored at an average temperature of 65°F for 6 months, prior to combustion.